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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,277	08/27/2003	Takayuki Tsutsumi	Q77174	4437

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
CHRISS, ANDREW W	

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/648,277	TSUTSUMI ET AL.	
	Examiner	Art Unit	
	Andrew Chriss	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment, filed January 15, 2008, has been entered and carefully considered.

2. In light of Applicant's amendment to Claim 5, objection to said claim is withdrawn.

3. In light of Applicant's amendment to Claim 1, rejection of Claims 1-3 and 8-11, 13, and 14 under 35 U.S.C. 112, second paragraph, is withdrawn.

Claim Objections

4. **Claims 11 and 25** objected to because of the following informalities: Claim language "which are included both a beacon signal and a probe response" should read "which are included in both a beacon signal and a probe response." Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 4-7, 12 and 18-21** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 4-7, claim language "the data transmitter of *the* access point" (emphasis added) is not commensurate in scope with the "at least two access points" cited in Claim 1.

Regarding Claim 12, there is a lack of antecedent basis for claim language "each radio channel."

Regarding Claims 18-21, claim language "receives from *the* access point" (emphasis added) is unclear as to which of the "access point with which there is communication" and "adjacent access point" cited in Claim 15 is referred to.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1-3, 6, 12, 15-17, and 20** rejected under 35 U.S.C. 102(e) as being anticipated by Takayama et al (United States Patent Application Publication US 2002/0025810 A1), hereinafter Takayama.

Regarding Claim 1, Takayama discloses a structure wherein a mobile terminal, while communicating with an access point, serving as a parent station, over a wireless LAN, can be quickly switched from the parent station to an adjacent access point having an overlapping communication range (As shown in Fig: 1 in a high speed roaming, Station 3 moves from one AP to another AP, paragraph 0032); wherein the access point (Fig: 2) comprises: a wireless LAN interface for communicating with the mobile terminal over the wireless LAN (Figure 2, 22; paragraph 0037), a roaming unit for performing a roaming operation (Figure 2, 24; paragraph

0039), a beacon transmitter for transmitting a beacon signal to provide synchronization with the mobile terminal (paragraph 0052), and a data transmitter (Figure 2, 22) for transmitting access point data required for the roaming operation (paragraph 0042). **Further regarding Claims 1 and 15**, Takayama discloses a mobile terminal comprising a wireless LAN interface (Figure 3, 32) and a CPU that scans and monitors beacons for peripheral access point data for storage in a database (paragraphs 0077-0081). When the beacon quality of the current subscription drops below a threshold value, the mobile station looks in the database to find the access point having the best radio environment (Figure 8; paragraph 0081).

Regarding Claims 2 and 16, Takayama discloses selection of the best radio environment once the RSSI value for a beacon of the currently subscribed access point drops below a threshold value (paragraph 0081).

Regarding Claims 3 and 17, Takayama discloses monitoring beacon levels for peripheral access points, storing the related data in a database, and connecting to the best communication environment once the RSSI value for a beacon of the currently subscribed access point drops below a threshold value (paragraph 0081).

Regarding Claims 6 and 20, Takayama discloses the mobile station receiving a RSSI value (known in the art as a ratio indicating signal strength) and basing roaming decisions on said received value (paragraphs 0077 and 0081).

Regarding Claim 12, Takayama discloses a master parent station periodically broadcasting a beacon reference signal comprising a time synchronization function to other access points, which serves to synchronize the access points (paragraph 0047). Takayama further discloses a backup capability wherein a slave access point can act as a master should a

broadcast message not be received within a certain period of time (paragraph 0057). Therefore, when the master station is not able to send out its radio beacon containing hop information to the mobile terminal, another access point will be able to send this beacon without overlapping with another access point (Figure 8; paragraph 0077).

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. **Claims 5 and 19** rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of Schramm et al (United States Patent Application Publication US 2001/0046879 A1), hereinafter Schramm. Takayama discloses all of the limitations of Claims 2 and 16, as described above. Takayama further discloses sending a beacon from an access point to a mobile terminal (paragraphs 0077 and 0081). However, Takayama may not disclose an access point transmitting an error ratio of data to a mobile terminal, wherein the mobile terminal stores the received error ration. In the same field of endeavor, Schramm discloses a mobile terminal measuring link quality on for base station candidates, including a raw BER estimate on a traffic channel (paragraph 0039) and selecting a station based on the best quality of service observed (Figure 3a). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the BER estimation with the beacon transmission disclosed in Takayama in order to assess cell capabilities when making a handover in evolved wireless networks.

11. **Claims 8, 9, 22, and 23** rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of Iimori (United States Patent 6,393,282).

Regarding Claims 8 and 22, Takayama discloses all of the limitations of Claims 1 and 15, as described above. Further, Takayama discloses storing a received RSSI value in a database on a mobile terminal, as described with regards to Claim 3. The received levels are compared among RSSI values sequentially received from neighboring access points (paragraph 0052). However, Takayama may not disclose a counter for counting the times for comparison or a roaming start instruction comprising the reception level being continuously lowered by a number that matches a predetermined count. In the same field of endeavor, Iimori discloses both counting the number of times a priority search is performed, wherein base stations are compared against one another for handoff, as well as decreasing a reception level by 1dB each time the search is performed (column 13, lines 14-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the counter and roaming start instruction disclosed in Iimori with the mobile station disclosed in Takayama in order to search for a base station according to a mobile station state and lengthen the mobile station battery life.

Regarding Claims 9 and 23, Iimori further discloses the mobile station sensing a received electric-field strength level. If the received level for a neighbor base station is equal or higher than a preset determination level, then handover is initiated (column 9, line 57 – column 10, line 22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the handover initiation Iimori with the mobile station disclosed in Takayama in order to search for a base station according mobile station state and lengthen the mobile station battery life.

12. **Claims 10 and 24** rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of Yuen (United States Patent 5,864,578). Takayama discloses all of the limitations of Claims 1 and 15, as described above. Takayama further discloses sending a beacon from an access point to a mobile terminal (paragraphs 0077 and 0081). However, Takayama may not disclose extracting an error ration included in a beacon signal and initiating a roaming operation when the error ration is larger than a predetermined error ration. In the same field of endeavor, Yuen discloses handoff initiation based on a high probability of error (column 20, lines 47-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the handoff initiation disclosed in Yuen with the beacon transmission disclosed in Takayama in order to provide handoff between two base stations without interrupting communications between a mobile terminal and the base stations.

13. **Claims 11 and 25** rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of del Prado et al (United States Patent Application Publication US 2003/0123405 A1), hereinafter del Prado. Takayama discloses all of the limitations of Claims 1 and 15, as described above. However, Takayama may not disclose the mobile terminal obtaining the end time of a contention-free period, included in a beacon signal and a probe response and searching for base stations except when data are transmitted and received, after the contention-free period is over. In the same field of endeavor, del Prado discloses a 802/11 point coordination function (PCF) that defines the start and end of a contention-free period via a beacon frame and a CF-End frame sent by the access point (paragraph 003). It would have been obvious to one of ordinary skill in

the art at the time the invention was made to combine the contention-free period disclosed in del Prado with the access point search disclosed in Takayama in order to avoid potential collisions in overlapping basic service sets.

14. **Claims 13, 14, 26, and 27** rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama in view of Hunkeler (United States Patent Application Publication US 2004/0063426 A1).

Regarding Claims 13 and 26, Takayama discloses all of the limitations of Claim 12, as described above. Takayama further discloses passive scanning (paragraph 0009) and a beacon table for storing received RSSI values. However, Takayama may not disclose the passive scanner at the time recorded in the beacon table, excluding the time whereat the mobile terminal is transmitting and receiving data. In the same field of endeavor, Hunkeler discloses a handset performing passive scanning by listening to available beacons (paragraph 0004). Further, the conventional beacon contains a timestamp (paragraph 0003), thus the scanning is performed at the time recorded in the beacon and not when the handset is transmitting and receiving data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the passive scanning disclosed in Hunkeler with the scanning disclosed in Takayama in order to broadcast information necessary for handover in WLAN systems.

Regarding Claims 14 and 27, Takayama discloses performing active scanning in the event that passive scanning does not obtain an access point (paragraph 0009). However, Takayama may not disclose an active scanner for examining an access point from which a response is received. In the same field of endeavor, Hunkeler discloses a probe-response

mechanism for active scanning in WLANs (paragraph 0004). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the active scanning disclosed in Hunkeler with the scanning disclosed in Takayama in order to broadcast information necessary for handover in WLAN systems.

Response to Arguments

15. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Chriss whose telephone number is (571)272-1774. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrew Chriss
Examiner
Art Unit 2619

/A. C./
Examiner, Art Unit 2619

/CHAU T. NGUYEN/
Supervisory Patent Examiner, Art Unit 2619